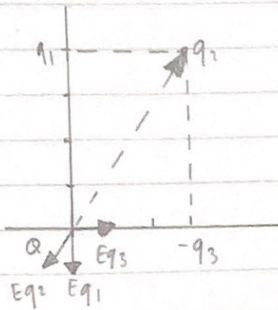


- Hitung medan listrik di titik (0,0)
- Hitung gaya listrik di titik (0,0)
- Hitung potensial listrik di titik (0,0)
- Hitung usaha untuk memindahkan ke 4 muatan tsb!

Jawab :

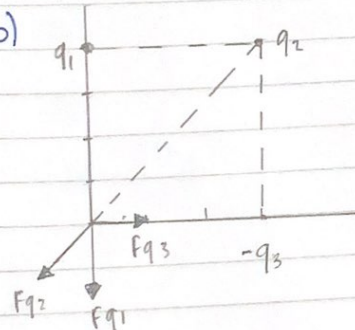
a)



$$\vec{E}_O = k \left[\frac{q_1}{r^2} (-\hat{j}) + \frac{q_2}{r^2} \left(\frac{-3\hat{i} - 4\hat{j}}{5} \right) + \frac{q_3}{3^2} (\hat{i}) \right]$$

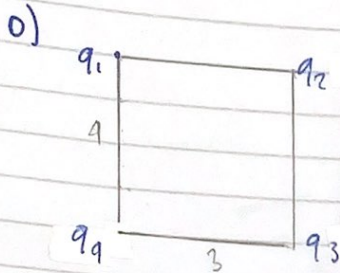
$$\vec{E}_O = k \left[(-\hat{j}) \left[\frac{q^2}{5^2} - \frac{3}{5} \right] + \frac{q^3}{3^2} \right] + \hat{j} \left[\left(\frac{q_1}{q^2} \right) \frac{a^2}{5^2} - \frac{4}{5} \right]$$

b)



$$\begin{aligned} F_q &= kq \left[\frac{q_1}{r^2} (-\hat{j}) + \frac{q_2}{r^2} \left(\frac{-3\hat{i} - 4\hat{j}}{5} \right) + \frac{q^3}{3^2} (\hat{i}) \right] \\ &= kq \left[\hat{i} \frac{q_3}{3^2} \left(\frac{q_2}{5^2} - \frac{3}{5} \right) - \hat{j} \frac{q_1}{4^2} \left(\frac{q_2 - 4}{5^2} \right) \right] \end{aligned}$$

$$c) V_p = k \left(\frac{q_1}{4} + \frac{q_2}{3} - \frac{q_3}{5} \right)$$



$$W_1 = 0$$

$$W_2 = V_1 \cdot q_2$$

$$= k \frac{q_1 q_2}{3}$$

$$W_3 = V_1 \cdot q_3 + V_2 \cdot q_3$$

$$= k \frac{q_1 q_3}{5} + k \frac{q_2 q_3}{4}$$

$$W_4 = V_1 \cdot q_4 + V_2 \cdot q_4 + V_3 \cdot q_4$$

$$= k \frac{q_1 q_2}{5} + k \frac{q_2 q_3}{4} + k \frac{q_1 q_4}{3}$$